❑ MN103001G

Type			MN103001G
Command ROM (×64-bit)			128 K-byte
Data RAM (×32-bit)			8 K-byte
Package			LQFP100-P-1414 *Lead-free
Minimum Instruction Execution Time			17 ns (at 3.0 V to 3.6 V, 60 MHz)
Interrupts			• RESET • IRQ × 8 • NMI • Timer × 18 • SIF × 8 • WDT • A/D • System error
Timer Counter			Timer counter 0 to 3: 32-bit × 1 (interval timer, event count, timer output, interrupt, clock source for serial I/F, A/D conversion trigger) Clock source ····· IOCLK; IOCLK/8; IOCLK/32; external clock input; underflow of timer counter Interrupt source ····· underflow of timer counter 0, 1, 2, 3 Timer counter 4 to 7: 32-bit × 1 (interval timer, event count, timer output, PWM output, interrupt) Clock source ····· IOCLK; IOCLK/8; IOCLK/32; external clock input; underflow of timer counter Interrupt source ····· underflow of timer counter 4, 5, 6, 7 Timer counter 8 to B: 32-bit × 1 (interval timer, event count, timer output, PWM output, interrupt, clock source for serial I/F) Clock source ····· IOCLK; IOCLK/8; IOCLK/32; external clock input; underflow of timer counter Interrupt source ····· underflow of timer counter 8, 9, A, B *: each of timer counters 0 to 3, 4 to 7, and 8 to B can be changed to an 8-, 16-, or 24-bit timer counter. Timer counter 10: 16-bit × 1 (interval timer, event count, PWM output, toggle output (2 lines), interrupt, input capture (2 lines), one-shot output) Clock source ····· IOCLK; IOCLK/8; IOCLK/32; external clock input; underflow of timer counter Interrupt source ····· overflow of timer counter 10; coincidence with compare capture (2 lines) or at capture Timer counter 11: 16-bit × 1 (interval timer, event count, toggle output, interrupt) Clock source ····· IOCLK; IOCLK/8; IOCLK/32; external clock input; underflow of timer counter Interrupt source ····· underflow of timer counter Timer counter 12: 16-bit × 1 (same functions as those of timer counter 11) Timer counter 13: 16-bit × 1 (same functions as those of timer counter 11) Watchdog timer: 16- to 25-bit × 1-ch.
Serial Interface			Serial 0: 7-, 8-bit × 1 (clock synchronous, start-stop synchronous, I^2C mode) Serial 1, 2: 7-, 8-bit × 2 (clock synchronous mode) Serial 3: 7-, 8-bit × 1 (start-stop synchronous mode) Clock source ····· (clock synchronous mode, start-stop synchronous mode) IOCLK; underflow of timer counter; external clock (I^2C mode) IOCLK; underflow of timer counter
I/O Pins	**I/O**	53	• Common use
	Output	15	• Common use
	Input	4	• Common use

A/D Inputs	10-bit × 4-ch.
PWM	16-bit × 1-ch., 8-bit × 8-ch. (common with timer)
ICR	16-bit × 2-ch. (common with OCR)
OCR	16-bit × 2-ch., 8-bit × 8-ch. (common partially with ICR)

Electrical Characteristics

Supply current

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	VDD , PVDD , AVDD = 3.3 V VI = VDD or VSS fosc = 15.0 MHz CKSEL pin = Hi level At internal = 60 MHz Output open			180	mA
Supply current at stopping	IDD4	VDD , PVDD , AVDD = 3.6 V VI = VDD or VSS fosc = Oscillation stopped Output open			100	µA

(Ta = –20°C to +70°C)

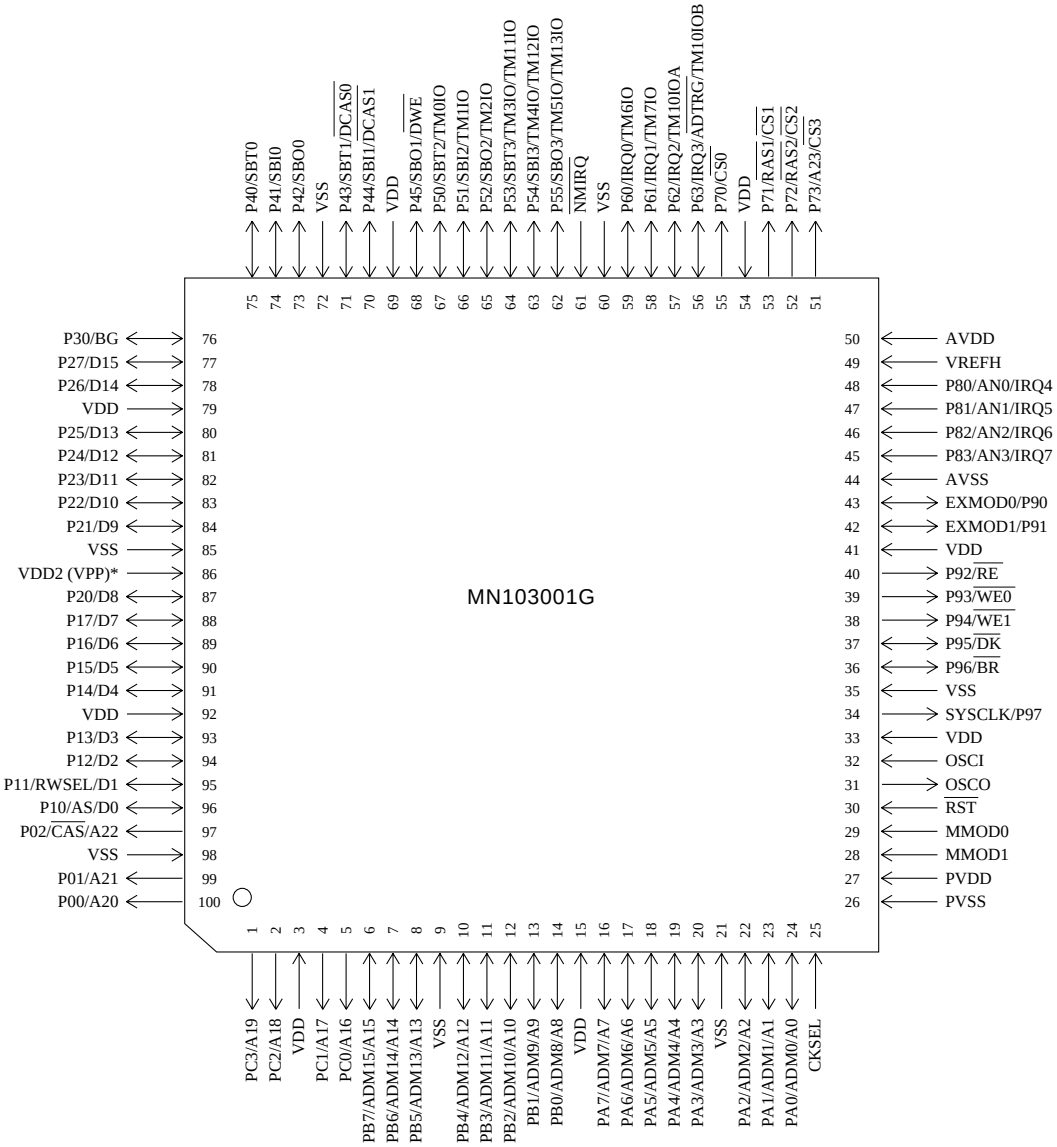
A/D conversion performance

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Resolution					10	Bits
A/D conversion absolute error		VREF+ = 3.3 V A/D conversion clock = 5 MHz			± 7	LSB
A/D conversion relative error					± 5	LSB
A/D conversion time			2.8			µs

(Ta = –20°C to +70°C, AVDD = 3.3 V, AVSS = 0 V)

See the next page for pin assignment and support tool.

Pin Assignment



LQFP100-P-1414 *Lead-free

* VDD2 for MN103001G and VPP for MN1030F01K

Support Tool

In-circuit Emulator	PX-ICE103001-LQFP100-P-1414	
On-board Development Tools	PX-ODB103S-O CSIDE-MN10300 (Computex Co., Ltd, product)	
Flash Memory Built-in Type	Type	MN1030F01K
	Command ROM (× 64-bit)	256 K-byte
	Data RAM (× 32-bit)	8 K-byte
	Minimum instruction execution time	25 ns (at 3.0 V to 3.6 V, 40 MHz)
	Package	LQFP100-P-1414 *Lead-free

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